The book is divided into five sections (with their associated graphs): general gas data, ammonia data, nitric acid data, hydrogen purification data, and miscellaneous data.

It will suffice to say that in no other publication have we found so adequate and up-to-date a summary of results. One wishes that other branches of physics and chemistry could be treated in a similarly comprehensive manner, and the whole issued as the British answer to "Landolt." It would be large, and doubtless expensive, but imagine its utility! And we need not despair, for we have now got an English Baedeker—blue—and that is only a beginning.

It is not clear from the copy before us to what extent the publication will be available to the general public, or how it may be obtained, or what its cost will be to the would-be purchaser. We trust that there will be no difficulties on these scores, for, both for its own worth and as an earnest of many more good things of the same kind, the present volume deserves a wide circulation.

BIOLOGY AND WAR.[1]

PROF. RAYMOND PEARL makes in the lecture before us an interesting examination of the biological philosophy of war. The primary implements are not mechanisms, but biological entities —men. The primary problems of war are biological problems—why do men fight, what kinds of men make the best fighters, what conditions conduce to the most effective fighting, and what are the probable consequences of the fight to the winner and the loser? "In general, why men deliberately plan wars is because they are different biologically, in structure, habits, mental outlook, thought, or other ways, and wish to preserve intact their differentiations." The group differences have an emotional context of passion, and the modern physiologists have shown us "why rage is more generally followed by fighting than by judicial arbitration." As to the belief, held with particular tenacity in Germany, that warfare is in line with the process of nature selection which has made on the whole for progressive evolution, it must be pointed out that "nowhere in nature does natural selection, as indicated by modern careful study of the subject, operate with anything like that mechanistic precision which the German political philosophy postulates; . . . much less does natural selection operate in a rigid and mechanical manner with reference to human affairs; . . . military results are not, in fact, measured in terms of biological survival." "The plain fact in the matter is that the proudly ruthless philosophy of Treitschke and Bernhardi is not only immorally cruel, but also immortally stupid."

As to the widespread fear that this war will have a serious dysgenic effect by the elimination of so many exceedingly desirable types, Prof. Pearl points out that the racial qualities are continued in the females, that many fighters have left progeny before they fell, that a large proportion of the total male population is not involved in the war, and so on. Nevertheless, it seems to us that Prof. Pearl is very optimistic in concluding that "any putative, deleterious, selective effect" of the present war "on the races concerned will be insignificantly slight." Most readers of NATURE will, we believe, know personally of several highly distinguished and markedly original men, whose deaths on the field have left the race, whatever statisticians may say, very definitely the poorer. These unique patterns may recur perhaps; for the present they are gone; and we know not how to replace them.

NOTES.

THE council of the South African Association for the Advancement of Science has resolved to institute a Sir David Gill memorial fund, to accumulate for a number of years until an amount has been raised adequate for some purpose to be decided upon. Mr. R. T. A. Innes, Union Observatory, Johannesburg, has consented to act as the secretary and treasurer of the fund, and intending subscribers are invited to communicate with him.

PROF. H. C. H. CARPENTER, the president of the Institute of Metals, has been nominated to fill the office for a further year.

DR. H. S. HELE-SHAW, F.R.S., and Signor Marconi have been elected honorary fellows of the Society of Engineers (Inc.).

SIR JOHN MARSHALL, Director-General of Archæology in India, has, in consequence of illness, been granted leave of absence, during which his deputy will be Dr. Spooner, Superintendent of Archæology, Eastern Circle.

A COMMITTEE on explosives investigations has been selected by the U.S. National Research Council at the request of the American Secretary of War and the Secretary of the Navy. The committee consists of Dr. C. E. Munroe, of the George Washington University (chairman); Mr. L. L. Summers, of the War Industries Board; Lt.-Col. W. C. Spruance, jun., of the Ordnance Department of the Army; and Lt.-Commdr. T. S. Wilkinson, of the Ordnance Department of the Navy.

DR. J. N. ROSE, a curator of the division of plants, the U.S. National Museum, has gone on a botanical expedition to Ecuador on behalf of the National Herbarium, the U.S. Department of Agriculture, the New York Botanical Garden, and the Gray Herbarium.

DR. OLAF ANDERSON, petrologist at the U.S. Geophysical Laboratory, has resigned his position, having been appointed Government geologist and director of an experimental silicate laboratory at Christiania.

ON September 3 there died in a nursing home in London, only three months after her "Life of Sophia Jex-Blake" had been published, Dr. Margaret Todd, the authoress. Dr. Todd was known to many readers as "Graham Travers," under which *nom de plume* her five novels were written. Dr. Todd, born in 1859, was educated at Edinburgh, Glasgow, and Berlin, graduated in medicine (M.D. Brux.), and was associated in her medical work with Dr. Jex-Blake, the pioneer of the "lady medicals" movement in Edinburgh. Their friendship led to Dr. Todd's becoming Dr. Jex-Blake's executrix and her biographer. To this latter task Dr. Todd brought a triple qualification, the colleague's, the friend's, and the novelist's. Like Mrs. Gaskell's "Life of Charlotte Brontë," it is a woman's life of a woman, is written by a novelist and reads with all the interest of a novel. Dr. Jex-Blake's biographer depicts her truthfully, a strong, not altogether likeable, personality, strangely emerging from the setting of a patrician English country home, in sharp contrast to the roughness and bitter rancour she endured in Edinburgh. There, supported by such men as Prof. Masson and a small band of staunch friends, she waged war against "a dying tyranny," won the day, and thereby opened a road for those who came after, among them Dr. Elsie Inglis, and others serving to-day with the Scottish Women's Hospitals. Dr. Margaret Todd's last work is an addition to biographical literature, and will help to keep the road-makers unforgotten.

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[1] A lecture given before the Washington Academy of Sciences on May 9, 1918. Journ. Washington Acad. Sci., vol. viii. (1918), No. 11, pp. 341-60.

DR. CARL PETERS, the German African explorer, died last week at the age of sixty-two. His first mission to Africa in 1884 was unofficial, and, in fact, discouraged by his Government, but Dr. Peters succeeded in signing a treaty with chiefs on the mainland opposite Zanzibar and laying the foundations of German East Africa. In 1888–90 he made an expedition up the Tana River by Mount Kenia to Lake Baringo, Victoria Nyanza, and back to Zanzibar through Usukuma and Ugoga. Dr. Peters's avowed object was to search for Emin Pasha, but he was more concerned in making treaties with Uganda chiefs. In this, however, he was forestalled by the British. His expedition covered a great deal of ground, and the way was marked by terrorism and brutality, where previous explorers had penetrated with little difficulty. In 1891 Dr. Peters returned to Africa, and in 1892 was one of the commissioners for delimiting the Anglo-German boundary in East Africa. Soon after he was recalled to Germany. In 1899–1901, and again in 1905, he travelled in the Anglo-Portuguese frontier lands in the Zambesi region, and made many important discoveries. This was probably Dr. Peters's best work, though his published results were marred by hasty conclusions and ill-founded judgments on the origin of the Zimbabwe ruins and the extent of early Portuguese work in Africa. Dr. Peters was the author of several works on Africa, including "The Eldorado of the Ancients," published in 1902.

THE publication of the *Monthly Register* of the American Society for Practical Astronomy has been suspended for the duration of the war. The society itself has postponed all further activity for the same period, and no new members are being elected. When the work of the society is resumed the organisation will be as at the close of 1917, the membership consisting of those who were upon the books at that time.

WITH the issue of the *Journal of Anatomy* for October, the publication of the periodical, which is the official organ of the Anatomical Society of Great Britain and Ireland, is to be transferred to the Cambridge University Press, Fetter Lane, E.C.4. Contributions should be sent, as hitherto, to Prof. Keith, acting editor, Royal College of Surgeons, Lincoln's Inn Fields, W.C.2. We wish the journal, which was established in 1867, continued and increasing success.

AMONG the forthcoming free public lectures to be delivered at Gresham College, Basinghall Street, are the following:—Geometry, W. H. Wagstaff, October 8 to 11; Astronomy, A. R. Hinks, November 5 to 8; Physic, Sir R. Armstrong-Jones, November 12 to 15; and Music, Sir F. Bridge, November 19 to 22.

WE welcome the establishment of a new scientific publication, the *American Journal of Physical Anthropology*, with Dr. Ales Hrdlička as editor, supported by a large staff of eminent American anthropologists. The first number, issued for January–March, 1918, contains some important contributions. Mr. G. S. Miller publishes an elaborate study of the famous jaw discovered at Piltdown in 1912. This specimen has been the subject of much controversy, some British anthropologists maintaining that it formed part of the admittedly human cranium close to which it was discovered, while others regarded it as the jaw of a chimpanzee accidentally washed into proximity with a human skull. The latter view is supported in this paper. The combined characters of the jaw, molars, and skull were made the basis of a genus Eoanthropus, of the family Homindæ. But Mr. Miller asserts that "while the brain-case is human in structure, the jaw and teeth have not yet been shown to present any character diagnostic of man; the recognised features in which they resemble human jaws and teeth are merely those which men and apes possess in common. . . . As the result of recent study the generic features of the jaw and teeth have not been shown to differ from those of living African chimpanzees." The question has probably not reached its conclusion. But the investigation will be assisted by the comprehensive study of the facts and a bibliography of the literature provided by Mr. Miller.

IN the September issue of *Man* Sir H. C. Read discusses a remarkable carved ivory object from Benin, which has recently been presented to the British Museum by Mr. Louis Clarke. At first sight this example scarcely suggests African art, but the representation of a human head wearing a hat connects it with other specimens of Benin art. It is difficult to conceive the precise object of a cover of this peculiar shape. It may have been used as the cover of a vessel, and offerings of some kind may have been dropped into a lower receptacle through the hole in the centre. But no exactly parallel specimen appears to exist in other collections of Benin art, and the object of its construction so far remains a mystery.

IN *Sudan Notes and Records* (vol. i., No. 3, July, 1918) Mr. W. Nicholls describes a remarkable marriage custom in the Sennar province, which is known as "stealing the fire." On the final night of the festivities the bridegroom goes to the bride's house escorted by a band of youths bearing torches. These torches can be lit only by fire taken from the bride's house, and this the relatives of the bride take every possible method to prevent. Some of the bridegroom's friends creep in secretly at night, or a body of them forces its way into the house to carry off the fire. The editor quotes as parallels the custom recorded by Sir James Frazer ("The Golden Bough," "The Magic Art," vol. ii., pp. 216, 230), in which fire is used as a fertility charm in marriage ritual. But this is not an exact parallel, and, assuming that the charm is in the interest of the bride, it does not account for the resistance made by her friends when the bridegroom's party endeavours to procure fire from her home hearth.

THE report for 1917 of the inspectors under the Act restricting experiments on animals has just been published; it can be got from H.M. Stationery Office or through any bookseller, price 2*d*. The total number of experiments in England and Scotland was 55,542, being 10,501 fewer than in 1916; the total number of experiments in Ireland was 832. About 97 per cent. of all experiments were inoculations, or other proceedings performed without anæsthetics. The decrease in the number of experiments goes with the fact that many of our pathologists and bacteriologists are working in one or other of the theatres of war. Indeed, the war is writ large all over this report. Of the twenty new places registered under the Act, fourteen are military hospitals and laboratories, mostly for Canada and New Zealand. Owing to the shortage of men for the work, women are helping; of the 695 licensees, 43 were women. The number of licensees is discounted by the fact that no fewer than 402 of the 695 made no use of their licences during 1917.

REPORTS have recently been received from various quarters of the occurrence in rooms of myriads of little black flies. These not only swarm upon the window-panes, but have also been found in drawers, under carpets, and even behind the glass of framed pictures. Specimens that have been submitted to the Natural History Museum, South Kensington, prove to be *Pteromalus deplanatus*, Nees, a species belonging to the parasitic Hymenopterous family Chalcididæ. There appears to be some uncertainty as to the host-insect that gives rise to such swarms of the parasite. The latter is recorded to have been bred from insects of various orders, *e.g.* a moth (*Tortrix xylosteana*), a beetle (*Ceuthorrhynchus asperulus*), and a Cynipid gall (*Teras terminalis*), but none of these hosts is likely to be the source of origin of such swarms of the parasite indoors; it is probable that in such circumstances it has emerged from one of the wood-boring furniture beetles (*Anobium striatum* or *Xestobium tessellatum*), though there is no definite record of such an origin. Should this prove to be the fact, the Pteromalus, though, perhaps, regarded by the householder as a nuisance, is evidently from its numbers a useful and efficient check upon the insidious and destructive pest of indoor woodwork, whether furniture, wainscotting and panelling, or beams and floorboards. Information of the definite association of the Pteromalus with one of these wood-boring beetles would be welcomed by the Natural History Museum.

MR. CLOUDESLEY BRERETON writes to us in regard to the origin of water-snails and leeches in a small artificial pool in a London garden. The basin, a few square feet in size, was made about three years ago, and one or two water-lilies were placed in it. Two years later some water-snails appeared, and this year three leeches. There is no pool of any sort in adjacent gardens. The water comes from the main. Where have the animals come from? (*a*) They may have been introduced in a young phase along with the water-lilies. The spawn of Limnæa and some other fresh-water snails is deposited on the under-surface of water-plants, and the eggs of some fresh-water leeches are similarly attached. (*b*) They may have been introduced along with the main water—the snails in their larval state, the leeches either when very small or later. On two occasions we have obtained from a house-tap in a large town leeches about 2 in. long. (*c*) Even in transitory rain-water pools the sudden appearance of fresh-water molluscs has been repeatedly observed, and we do not know that any circumstantial explanation has been given. It is probable that water-birds, such as wagtails, may occasionally serve as distributors. Darwin wrote in the "Origin of Species" of just-hatched shells clinging to a duck's foot, and Sir Charles Lyell told him of a water-beetle (Dytiscus) which carried an Ancylus, a fresh-water snail like a minute limpet. Mr. Brereton's observation, which has its counterpart in the experience of others, deserves further investigation.

ENTOMOLOGISTS are still in doubt as to the stage of the life-history in which the common house-fly normally passes the winter. A paper on the subject has been lately published in the *Journal of Agricultural Research* (vol. xiii., No. 3) by R. H. Hutchison, who concludes, from observations and experiments made in Washington, that larvæ and pupæ survive the cold season in and under large manure-heaps, and that breeding may go on through the winter if flies gain access to heated buildings, and find there both food and material suitable for egg-laying.

THE stone-flies (Perlidæ) have hitherto been considered as of no economic importance except that they serve as bait for anglers. A paper by E. J. Newcomer (*Journ. Agric. Research*, vol. xiii., No. 1) is therefore noteworthy, since it records damage to orchard foliage by some species of Tæniopteryx.

THE "Summary of Progress of the Geological Survey of Great Britain for 1917" (H.M. Stationery Office, 1918, price 2*s*.) contains a number of valuable facts relating to the modes of occurrence and probable reserves of iron-ores in Great Britain. Mr. Lamplugh's account of the oolitic ore of Jurassic age revealed by the Dover coal-borings is especially noteworthy, a reserve of about 100,000,000 tons being indicated. Dr. R. Campbell describes Scotch occurrences of potash-felspar.

THE issue of the *American Journal of Science* for July, 1918, contains 416 pages, and commemorates the one hundredth anniversary of the foundation of the journal. The progress of the sciences since 1818 is described in eleven chapters, and the entire cost of the issue has been defrayed from the Silliman memorial fund. In his review of the history of the journal, Prof. E. S. Dana gives a facsimile of the covering title of vol. i., No. 1, which shows that its scope included "agriculture and the ornamental as well as useful arts." The essay on "The Progress of Historical Geology in North America," by Charles Schuchert, contains important remarks on stratigraphy, and the following classification is proposed for the older Palæozoic systems:—Taconic (Olenellus beds), Cambrian, Champlain (Emmons, 1842) or Ordovician, Silurian. The author does not seem aware of Lapworth's support and revival of the term Taconic in 1891. Joseph Barrell, in a philosophic article, reviews the growth of our knowledge of earth-structure; and R. S. Lull deals with vertebrate palæontology, a subject to which the United States have made such paramount contributions. H. L. Wells and H. W. Foote, in the article on chemistry, furnish a table of the elements on Mendeléeff's scheme, in which recent discoveries are included. Attention is directed by the authors to the remarkable compartment in Group III., in which fourteen metals of the rare earths are summarised as "lanthanum 139·0 to lutecium 174·0," the full list being added below. The century's progress in physics is reviewed by L. Page; but W. R. Coe deals only with American developments in zoology. The capture of Louis Agassiz for the United States in 1846 is recorded with warm appreciation.

MR. J. T. JUTSON (Proc. Roy. Soc. Victoria, vol. xxx., part 2, 1918, p. 165) furnishes striking examples of the influence of the crystallisation of soluble salts in promoting rock-weathering in sub-arid regions. He acknowledges his indebtedness to Prof. J. Walther, who directed attention to the subject during the visit of the British Association to Australia in 1914. Level rock floors are developed around lakes, where moisture, containing for the most part sodium chloride, is drawn up by capillarity. The solidifying of the salt disintegrates the rock, and wind removes the *débris*. Caves are eaten out in this way under the marginal cliffs, which recede by a process of dry undermining. A paper by Dr. Bather in the *Geological Magazine* for 1917 is referred to.

A PUBLICATION of importance to zoologists and geologists on "The Foraminifera of the Atlantic Ocean" is begun by Mr. J. A. Cushman in Bulletin No. 104 of the United States National Museum (Smithsonian Institution, Washington, 1918). The Astrorhizidæ are here dealt with, and the evidence of selective ability in these primitive forms is of perennial and philosophic interest. Haliphysema, with its crown of sponge-spicules, is figured after Brady; but photographs are given of *Psammosphaera parva*, which habitually builds into its spherical test one large spicule, projecting boldly at each end. Mr. Cushman writes of another species as possessing "even greater ingenuity."

ONE of the greatest earthquakes of the last ten years was registered on September 3. At West Bromwich the range of movement amounted to 10 in.; the writing pointers were frequently swept off the paper, and were once completely dismounted, the total duration of the oscillations being four or five hours. The origin of the earthquake is estimated to be in the North Pacific, at a distance of 5600 miles, and probably in the Aleutian Islands, which belong to one of the great unstable regions of the globe.

MR. C. H. GLASCODINE, of Abingdon Gardens, W., has sent us an account of a remarkable hailstorm in King Island, Tasmania, on June 21 last, received from his nephew, Mr. E. J. Glascodine, from which we extract the following:—"The hailstones were like starfish, *i.e.* with a roughly spherical core and fingers out in all directions, not only on one plane: more like one of those most useful-looking old-time war weapons, spikes protruding from a sphere of iron in all directions mounted on a handle by a short chain! But in the case of the hailstones the spike was much longer, the largest part of the whole. One or two I measured were more than three inches across from point to point, and several were above two inches in two directions: the centre was comparatively small, from ½ in. to ¾ in. in diameter, roughly. They were not heavy, and were clear ice, not opaque as hail usually is, and at the same time each 'stone' appeared to be an agglomeration of ordinary small hailstones. Though the ground was more or less covered with ice, which lay for two hours, and only a proportion of the hailstones were of extra large size and this unusual shape, the thermometer (on veranda) did not fall below 48° F. All soft, succulent leaves of plants, such as arum lilies and rhubarb, turnip-tops, and such like, were shredded, torn in strips."

IN an article in the September issue of *Scientia* Dr. A. Riccò, of the Astrophysical Observatory of the University of Catania, summarises our knowledge of the constitution of the sun. So far as the interior is concerned, there is still much to learn. The high temperature and pressure which exist there are so much above those attainable in a laboratory that we are unable to ascertain what their effects on the properties of matter are likely to be. There seems little doubt that the temperature of the interior exceeds 7000° C., and is well above the critical temperatures of the substances of which the sun is composed. As a consequence, those substances should be in the gaseous state; but under the enormous pressure to which they are subjected their molecules are so close together that the properties of the gases must be similar to those of liquids, or even solids, as known from laboratory experiments.

IN a paper presented to the Franklin Institute in March, which appears in the August issue of the Journal of the institute, Mr. F. W. Sperr, jun., chief chemist to the Koppers Co., of Pittsburgh, dealt with the relations between the principal characteristics of American cokes and the sources of the coal from which they are produced. In the course of his address he pointed out that more than one-half of the sixty million tons of coke produced per annum in America at the present time is made in the old "beehive" oven, which wastes the ammonia, benzene, naphthalene, toluene, and other by-products the modern oven conserves, and, in addition, will only produce good coke for metallurgical purposes from a much more restricted range of coals than the modern oven. He estimates the annual loss to the country from this cause to be 19,000,000*l.*

THE American Ceramic Society, which has been in existence nearly twenty years, and has hitherto issued its Transactions in the form of annual volumes, has decided instead to publish a monthly journal, the first number of which has just come to hand. The official description of it as "a monthly journal devoted to the arts and sciences related to the silicate industries" serves as a reminder that the authoritative definition of the term "ceramic" in America covers a much wider range than is commonly accepted elsewhere. Possibly this more extensive field may supply at the same time a reason for publication at shorter intervals, and a sufficient amount of suitable matter to maintain the standard aimed at. It is interesting to note that of the committees through which the U.S. National Research Council works, three are concerned with subjects coming within the scope of the American Ceramic Society's activities. An appreciative notice of Prof. E. Orton, jun., who has been secretary of the society since its foundation, is included. Among the technical papers in this first number are:—"Special Pots for the Melting of Optical Glass," by Bleininger; "The Effect of Gravitation upon the Drying of Ceramic Ware," by Washburn; and "Notes on the Hydration of Anhydrite and Dead-burned Gypsum," by Gill. We wish the American Ceramic Society success in its new venture.

READERS of NATURE may be weary of the iteration with which their attention has been directed to the extraordinarily liberal scale on which the American Government subsidises the provision of agricultural education and research, but an article in the current *Fortnightly Review* contains some striking figures which deserve notice. For example, the expenditure of the United States Department of Agriculture has risen from 234,000*l.* in 1890 to upwards of 5,000,000*l.* in 1916—a figure which may be contrasted with the 300,000*l.* odd expended by the English Board of Agriculture in the latter year. Another striking figure is derived from the report of the Division of Publications. The aggregate printed matter issued in one year exceeded 25 million copies of nearly 2000 separate publications, all of which were issued at a nominal price. Another novel form of activity noticed is the employment of "agents in the field" to supply advice gratuitously to the southern coloured agriculturists. Of these 450 were employed. Again, what are known as "corn clubs" for boys have been started. The membership of these exceeds 46,000, and all have been specially instructed in the growing of maize. A sum of 8000*l.* was distributed in prizes for good work. A further respect in which the U.S. Government is far ahead of the British is in relation to the control of food products, especially in respect of adulteration and preservatives, and of this department a characteristic feature is the

"Poison Squad," a band of young men who have volunteered to submit themselves to experiment with suspected foods. The writer of the *Review* article, however, carries his admiration of American administration too far, perhaps, when he says that "the American Government's offices are staffed, not with dull, bureaucratic automatons, not with human derelicts and petrifacts, but with keen, open-minded, and striving business men." This is the same form of psychosis which led before the war to the adulation of German institutions and methods. There is, however, another tribute paid to the American with which more complete agreement can be expressed. "America's chief success," says the writer, "is largely due to the fact that education is the chief industry of the nation." We agree; the American has an intense belief in the value of education and in an aristocracy of brains rather than of wealth. In this respect England has much to learn.

Recalled to Life, a quarterly review devoted to all that is being done for the disabled sailor and soldier, now appears with a new name, *Reveille*, and a new editor, Mr. John Galsworthy in place of Lord Charnwood (H.M.S.O., *2s. 6d.* net). In the issue for August Col. Sir Robert Jones gives a graphic account of the work now being carried out by surgeons in the special military hospitals where disabled men are treated. Experience has shown that the principles which have to be applied in military orthopædic cases are those which were successfully applied in peace-time to children who had suffered from infantile paralysis. Before the war very few surgeons saw more than occasional cases of wounded or divided nerves. Now every convoy from France brings many such cases. The technique of the suturing of nerves has become one of the important points in operative practice. Operations, such as the grafting of bone, the transplantation of tendons, and the plastic reformation of the face or of stumps, which were regarded as surgical curiosities in peace-time, have now become matters of everyday experience. The chief lesson that the military surgeon has learned from recent experience is that the re-education of nerves, muscles, and joints which have been reformed by operation is by far the most important and tedious part of successful treatment. "Muscles," says Sir Robert Jones, "can be made to learn to do things they never did before; bones can be arranged, and the cells will build them up to meet new emergencies; nerve-cells will learn to send messages to the muscles in their new work, and a new limb, as it were, will be created."

ACCORDING to the *Zeitschrift für angewandte Chemie* for July 2 last, an association of German manufacturers of finely ground dyes, recently formed in Berlin, has been joined by nearly all the firms interested. In addition to watching the economic interests of its members, the new association will act as a central medium for the distribution of raw materials both now and during the transition period.

A LARGE deposit of graphite at Skaland, in Norway, and under the control of the Metallurgists A./S. of Bergen, has been prospected, and now proves to be sufficiently extensive to supply the Norwegian market for some years to come. Any desired quality of product can be made from the crudest material up to one of 97 per cent. purity. Electrostatic separation is adopted. According to U.S. Commercial Reports (May 23, 1918), it is proposed to erect a plant capable of meeting the home demand.

AN engineer in Haugesund (Sweden) is at present engaged on an invention in connection with the smelting of molybdenum at a large works near, at which (according to *Verdens Gang,* June 30) it is hoped to refine fifty tons of molybdenum per annum.

DR. HEINRICH TRAUN AND SONS, of Hamburg, have issued a four-page leaflet giving particulars of "Faturan," an insulating material manufactured by them. It is a condensation product of phenol and formaldehyde. It is non-hydroscopic, and scarcely affected by heat. A high insulation is maintained owing to the absence of surface sulphur. Its tensile strength is 2·5 to 3 kg. per mm.^{2}, and its specific gravity 1·2 to 1·3 in normal qualities.

MESSRS. HENRY FROWDE AND HODDER AND STOUGHTON have in the press for publication in the series of Oxford Medical Publications "The Early Treatment of War Wounds," by Col. H. M. W. Gray, illustrated, and "War Neuroses and Shell Shock," by Brevet Lt.-Col. F. W. Mott, illustrated. They also announce a new edition of "Surgical Diseases of the Gall-bladder, Bile Ducts, and Liver: Their Pathology, Diagnosis, and Treatment" (including Jacksonian prize essay), by H. J. Waring, illustrated.

OUR ASTRONOMICAL COLUMN.

AUGUST AND SEPTEMBER METEORS.—Mr. Denning writes that between August 28 and September 12 he observed 153 meteors, and determined a number of radiant points of minor showers. The chief of these were as under:—

1918		Radiant ° °	No. of meteors
August 28–September 8	...	0− 2	8
August 28–September 8	...	265+63	7
September 2–12 ...	...	318+48	10
August 29–September 8	...	326+78	6
August 28–September 12	...	332+ 5	8
August 30–September 8	...	333+57	9
August 31–September 12	...	337−10	7
August 29–September 1	...	352+76	8

The Cygnids, No. 3 on the list, were very definitely marked, and that radiant, like several of the others, remains visible during a long period.

On September 8 two large fireballs were seen by Mrs. Wilson at Totteridge at 7h. 20m. and 10h. 14m. G.M.T. The latter was estimated to be four times as brilliant as Venus, and it broke into three pieces in the latter part of its flight. It had a long course of 170 miles, from 10 miles south of Dunkirk to the North Sea about 40 miles north-east of Cromer. Its height was from 64 to 29 miles, velocity 14 miles per second, and the radiant point was at 324°−25° in Capricornus.

NOVA MONOCEROTIS.—A detailed account of the spectrum of Nova Monocerotis, as observed on February 25 and March 1, 15, and 27, has been given by Dr. G. F. Paddock (Lick Obs. Bull., No. 313). The following bright lines were observed in addition to those of hydrogen:—4363, 4640, 4686, 4959, 5007, 5526±, 5677±, 5756±, all being described as faint except the first two and the fifth. As in other novæ, the lines were broad and complex, and each emission band had a faint central absorption band. The bands of hydrogen and 4640 were nearly symmetrical, while the nebulium lines were brightest on the violet sides of the absorption bands. There were no narrow lines suitable for determinations of radial velocity, but the central absorption bands appear to have occupied nearly their normal positions. It is evident that the star had reached the nebular stage in the usual sequence of spectra when these observations were made. At the time of discovery by Wolf on February 4, the magnitude of the nova was 8·5, but previous photographs in the Harvard collection showed that the maximum had already been passed.